

Work Order ID 144227

Friday, April 08, 2016 9:59:19 AM

144227

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Item ID: D6104-005 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Round Billet, 17-4
 Start Date: 4/8/2016 Start Qty: 20.00 ***20*** Cust Item ID:
 Required Date: 4/26/2016 Req'd Qty: 20.00 ***20*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: MAT043	0.00							20 0 0.00 14 0.00 16/04/16
130									
Packaging	Memo	0.00							
Packaging	LOCATION: MAT043								
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.03							ML5 APR 18 2016
Quality Control									ML5 APR 18 2016

Picklist Print

Friday, April 08, 2016 9:59:17 AM

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Work Order ID: 144227

144227

Parent Item: D6104-005

D6104-005

Parent Item Name: Round Billet, 17-4

Start Date: 4/8/2016

Required Date: 4/26/2016

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A: 01.05.08New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D6104-005P

Purchased

No

110

Each

0.0000

1

20

D6104-005P

17-4 SS Roundbar 4.00"Od

**

20x SP16-04-14

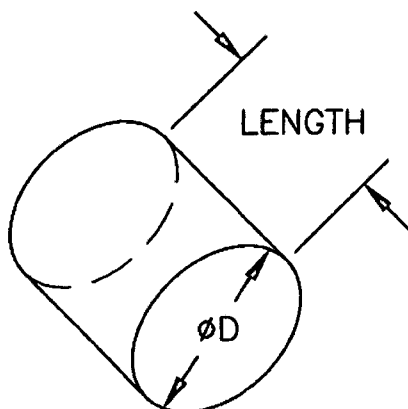


DESIGN RF	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



DAS
13
9-89

APR 08 2016

W10: 144227

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO31985

Purchase Order Date 4/8/2016

PO Print Date 4/8/2016

Page Number 1 of 2

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

APR 11 2016

E-MAILED

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

USD

Destination-Collect

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
	Line Comments		Promise Date				
	Delivery Comments						
	D6104-005P	17-4 SS Roundbar 4.00"Od	4/25/2016		20.00	\$54.20	\$1,084.00
			Yes		Each		
			4/25/2016				
	AS PER DWG D6104 REV. B						
	B144227						
	MATERIAL: 17-4 PH AS PER AMS 4643 OR AISI 630						
	SIZE: 4.00" X 5.10" LONG						
						Line Total:	\$1,084.00
2	71401-45	PROCUREMENT QUALITY CLAUSES	4/25/2016		1.00	\$0.00	\$0.00
			No				
			4/25/2016				
	Procurement Quality Clauses						
	A005 right of entry						
	A012 chemical and physical test report						
	A016 personnel qualification						
	A017 raw material identification (as applicable)						
	A026 certification of material conformance						
	A041 quality management system						
	A042 dart notification by supplier						
	A043 retention of quality documents						

Note:

4/8/2016

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:2942686

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 13-APR-16	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 2942686-2	

Shipment Details	Final Destination Branch - TOR
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Order No 4319611	Line No 1	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No 31985		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 20.00 PCS		Invoice Qty 20.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS 5016-04-14					
Delivery No. 120399160	Mill NORTH AMERICAN STAINLESS	Heat Number 	Mech Id	PCS 20	Width (IN)	Length (IN)	Shipped Qty(LBS) 374.5814

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.
Date Printed: 13-APR-2016 04:56:04 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

Name:



APR 13 2016

2016-04-14



**NORTH AMERICAN
STAINLESS**

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 105025 02 Mail To: Ship To: Date: 10/15/2015 Page: 1 of 1
A.M. CASTLE AND COMPANY A.M. CASTLE AND COMPANY
1420 KENSINGTON ROAD-SUITE 220 26800 MILES ROAD
OAK BROOK IL 60523 BEDFORD HEIGHTS OH 44146
Customer: 0032 005
NAS Order: LP 37916 1
Your Order: 346085-1 Item Code: 42464
Steel: 630(17-4)
Finish: Hot Finish
Dia/Thk: 4.0060 in
Leg Length: 144.00 in
Corrosion:

PRODUCT DESCRIPTION:

AMS 2303F,
Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/11, MACRO OK, AMS 5643T
ASTM A564/13, AMS 2303, ASME SA564-07, ASTM F899/11 (CHEM ONLY)
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

DAS
14
9-69

16/04/16

Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight
BH50373	2090	BH50382	2018						

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/08

Heat	Supplier #	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %	P %
W5L9		US	.022	.176	.09	15.38	3.02	.77	.09	.027	4.21	.020
			S %	SI %	TA %	TI %						
			.0285	.62	.0080	.0020						

MECHANICAL PROPERTIES

	l d	HB	Grain	Ferrite	TS-900CAP	YS-900CAP	EL-900CAP	RA-900CAP	RC-900CAP	FREQ.	SEV.
	o i	No.	No.	%	KSI	KSI	% 4D	%	No.	No.	No.
BH50373	R L	341.0	8.0	.10	200.24	175.93	12.88	44.20	42.5	.20	.11
BH50382	R L	341.0	8.0	.10	200.24	175.93	12.88	44.20	42.5	.20	.11



NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS

Technical
Dept. Mgr.

ABHIJEET BHAVE

MATERIAL RECEIPT INSPECTION FORM

MATERIAL DL104-005
DATE 16/04/16

PO / BATCH NO 31985/144227

MATERIAL CERT REC'D yes
QUANTITY RECEIVED 20
QUANTITY INSPECTED 20
QUANTITY REJECTED _____

THICKNESS ORDERED 04.00 X 5.100
THICKNESS RECEIVED 04.040 X 5.200
SHEET SIZE ORDERED _____
SHEET SIZE RECEIVED _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	☒	☒	
CORRECT FINISH	☒	☒	
CORROSION	☒	☒	
CORRECT GRAIN DIRECTION	☒	☒	
CORRECT MATERIAL	☒	☒	
CORRECT THICKNESS	☒	☒	
PHOTO REQUIRED	☒	☒	
CORRECT MATERIAL	☒	☒	
CORRECT REF # TO LINK CERT	☒	☒	
CORRECT MATERIAL IDENTIFICATION	☒	☒	
CORRECT M# ON THE MATERIAL	☒	☒	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	☒	☒	
DOES THIS REQUIRE AN EXTRUSION REPORT	☒	☒	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK RECORD RESULTS BELOW				
	HRC	HRB	DUR A	DUR D
TYPE OF MATERIAL				
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY <u>DAS</u> <u>14</u> DATE <u>16/04/16</u>	SIGNED OFF BY _____ DATE _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

1. VERIFY STOCK TO DART PURCHASE ORDER
2. MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
3. VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc
4. VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
5. VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
6. REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

1. VERIFY TO DART SUPPLIED DRAWING
 2. SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
 3. USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
 4. VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING
- AFTER MATERIAL PASSES INSPECTION**
5. HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
 6. INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

1. VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
2. INSPECT MIN HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
3. INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
4. IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2) AND W/O# AND PO#
5. RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER